

**Instruction Sheet
for the PASCO
Model SF-8619**

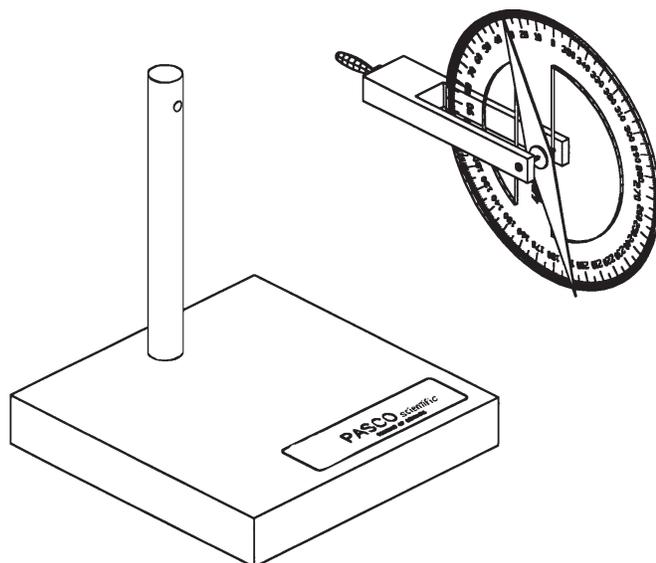
MAGNETIC DIP NEEDLE

Introduction

This compass needle is used to measure the dip angle of the Earth's magnetic field. However, it may also be used in its horizontal position as a conventional compass.

Setup Procedure

- Assemble the two parts of the dip needle by inserting the banana plug connector into the hole in the black rod on the stand, as shown in equipment setup diagram.



Equipment Setup

- Put the dip needle in a location which is far away from any ferromagnetic materials and other magnetic fields. If you place the dip needle on a table, be sure there are no ferromagnetic supports under the table top.
- Rotate the dip needle at its banana plug connection until the plastic scale is in the horizontal plane.

- While in the horizontal position, rotate the entire apparatus to align the compass needle with the axis of banana plug pivot.
- Without changing the orientation of the base, rotate the dip needle at its banana plug connection until the plastic scale is in the vertical plane.

Theory

The dip needle is a magnetized steel needle which rotates around its center of mass. When no other magnetic fields are present, the dip needle will align itself along the direction of the Earth's magnetic field. The dip angle, or inclination, is the angle between the horizontal plane and the total Earth magnetic field. By convention, the dip angle is positive when pointing downwards.

The dip needle apparatus measures the angle, θ between the vertical plane and the total Earth magnetic field. In order to obtain the dip angle, subtract θ from 90° .

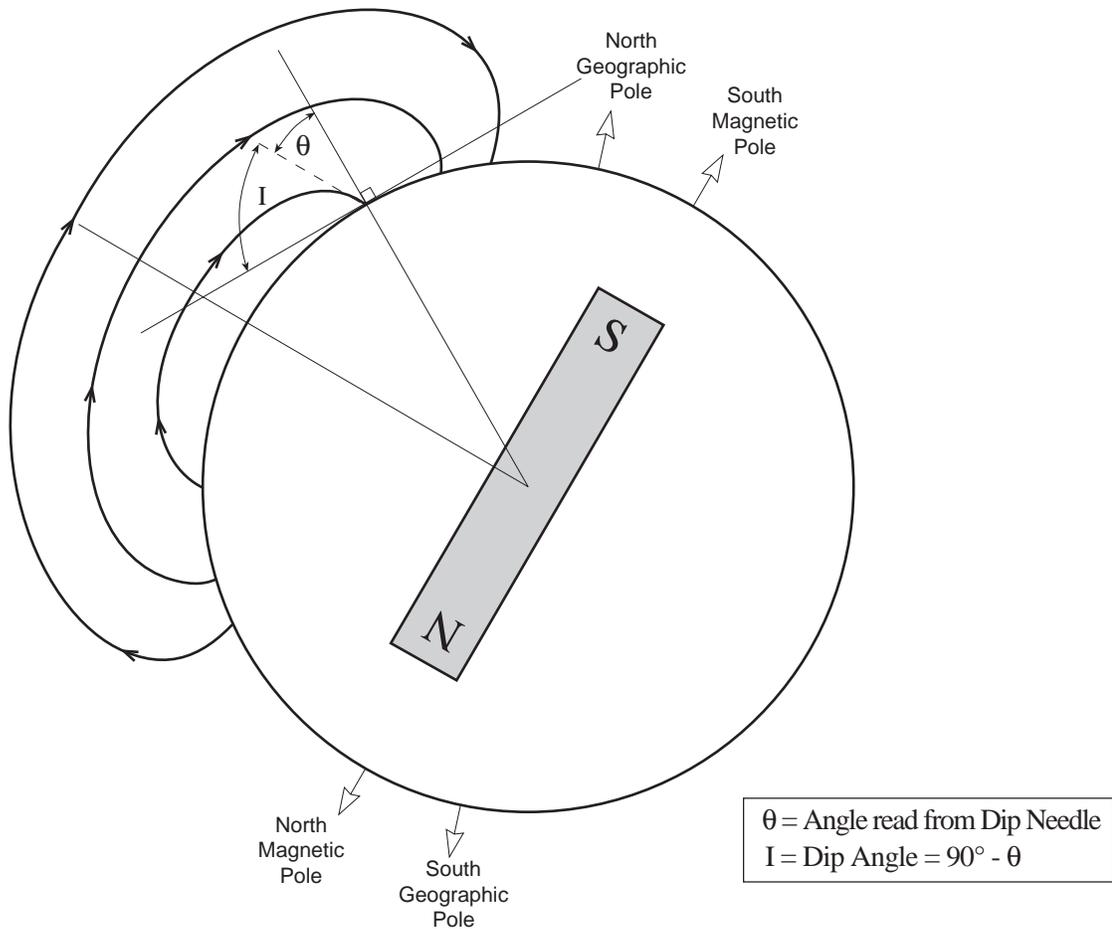
The United States Geological Survey maintains a public domain program for IBM compatible computers which models geomagnetic parameters including dip angle. The user inputs their latitude, longitude and elevation and the program calculates the dip angle. Copies of the program are free of charge and are available over the Internet via the following methods:

ftp host:	ftp.ngdc.noaa.gov	login anonymous
gopher host:	gopher.ngdc.noaa.gov	no login necessary
www host:	http://www.ngdc.noaa.gov	no login necessary

The appropriate file is `pcgeomag.zip` which contains the source code, executable and documentation files along with the current magnetic field model.

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Dip Angle for Northern California

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